Notebook, N-90-01-04.5

This notebook covers the period January 1890-April 1893. All entries are by Edison. The book contains notes, drawings, and calculations relating to ore milling, including what appears to be a list for a patent caveat. There are also electric railway drawings and notes for a series of chemical experiments. The front cover is labeled "#583"; the number has been crossed out. The inside front cover is inscribed "#583 T A Edison Jan 4. 90." The book contains 182 numbered pages and has been used in both directions. Two pages were removed before the book was paginated.

Filming order: 1-147, 182-152.

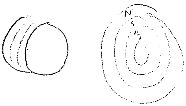
Blank pages not filmed: 2-3, 48-139, 148-151.

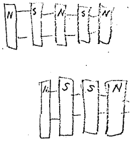
N-90-01-04.5

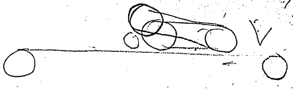
#583

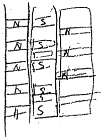
T A Edison
Jan 4. 90

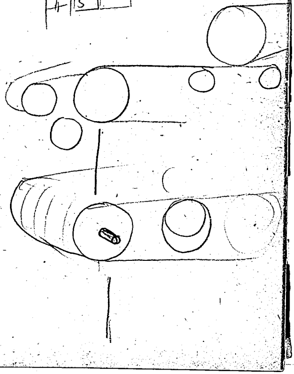
XE-5286








N
S
N
N
S
N
N
S
N
N
S
N
S
N
S



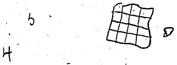
	Sp grav	Hardness	Streak	Fracture	Phenom	Color
Pyrite - FeS_2 S 53.3 Fe 46.7	4.83 @ 5.2	6 @ 6.5	greenish or Brownish Black	Conchoidal uneven Brittle -	Strikes fire with steel	Pale brass yellow
Ni Co Cu Thallium sometimes replace ~~iron~~ a little of iron — Closed tube S sublimes Residue Magnetic Ins HCl Dec Nitric —						
Cubanite S 39 Cu 20 Fe 38	Sg - 4.02	H 4	Dark Reddish Bronze black.			Bronze & brass yellow
Closed tube sublimate.						
Calcopyrite 35 S. 34 Cu 30 Fe	4.1 @ 4.3	3.5 @ 4	greenish black	Conchoidal uneven	Subject to tarnish often iridescent Can cut it with a Knife	Brass yellow
Thallium & selenium sometimes present. Closed tube decrepitates - Sub of S dis in Nitric Except S green solution NH in Excess changes to deep blue						

Stannite

H. 4 — G 4.3 @ 4.5 Lustre metallic
Streak blackish. Color steel gray to
iron black — the former when pure, sometimes
bluish — after yellowish from Calcopyrite.
Opaque — Fracture uneven Brittle,
S 30 Sn 26 Cu 30 Fe 12 @ 6.
Zn 7 @ 8. Closed tube decrepitates.
faint sublimate. open sub of Sn Oxide,
Dec nitric bluen sol separates S + oxide Tin

Linnaeitte —
H 5.5 G 4.8 @ 5 Lustre metallic

1600 mesh



20 tons
5
50 tons hour
1000 lbs —
20
2000
10 +

27
4

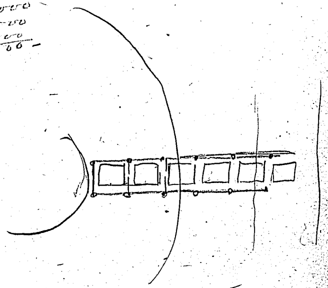
100.
10800 —

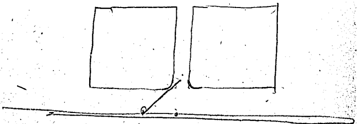
1 pair rolls 50 ton hour }
50 screens – } net 10 ton 1000 m in 20 hours

10 pair rolls – 500 screens.

25000 –
10000 –
5000 .
12000
3000
10000
65000 –

1500 –





Pyrite, Grav 4.83 @ 5.2 -

S 53.3 Fe 46.7 67 weight -

Calcopy - G 4.1 @ 4.3

Cu 34. S 35.8 Fe 30 - 82
42 -

Muspickel. G 6. 6.4

As 42 88 S 21 Fe 36. 50

Pyrolite. G 4.4 @ 4.6%.

S .38 Fe 57. Ni 3

S 40.15
Fe 59.18 84.

596
66
3548
3548
16) 3894 (24.3
32
69
64
54

50
24
4 4

400
66
2400
2400
16) 26400 (16
16
104

36
14
50

360
66
2160
2160
16) 2376 (14.8
16
77
64
136
134

670
66
4020
4020
4420
71
30 70 (2.33
60
100
90
100

47
20
67.

428 lbs to 10 lbs

470
66
2820
2820
16) 3102 (19.4
16
150
154
144
62

7) 30 (4.28
28
20
14
60

6 oz to lb

1/2 oz to lb
160

1.2

6.) 16.0 16) 70
6
420 (26
32
100

64.

700
65
3500
4200
16) 4550 (28
32
135
128

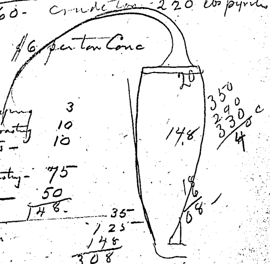
10 m. 1.

783

mining 25
Crushing to 40 mesh - 25
Concentrating 10
60 -

Must have $1 to pay.
crude ton - 220 lbs pyrites

or $6 per ton Conc



Conc -
Drying 3
Semiroasting 10
Magnets - 10
Dead Roasting - 75
Re Concg 9 - 50
148.
Bricking Iron 35
Making Copper 1 25
148
308

Total 9.08 -

get 75% of ore - at $3.
Total
genl Ex
Total

908
2 25
6.83
1.00
7.83

908.
600
3.08.

60000
18000,
18000
36,000 -

2 -

250

5000 -
24
20000
10000
120,000 .

62
300
/8600

25
9
225 -

33
22
66
66
9) 726 .
185 -

2240) 275000 (123
2240
5180
4480
6200 -

3) 225
75
5
375

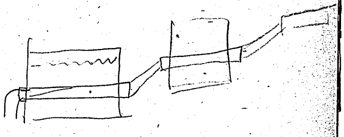
375 - Cu
225 - Fe
60,0 -
2

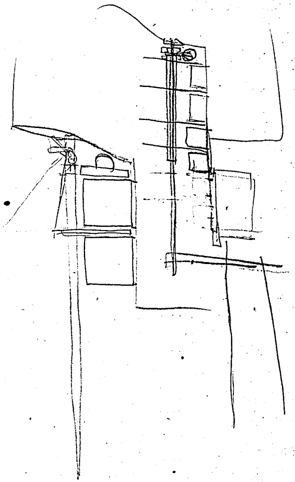
10.

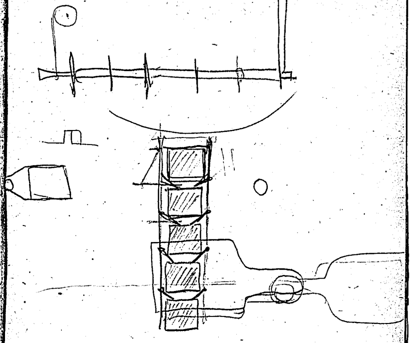
30

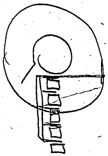
60
300
/8000 .

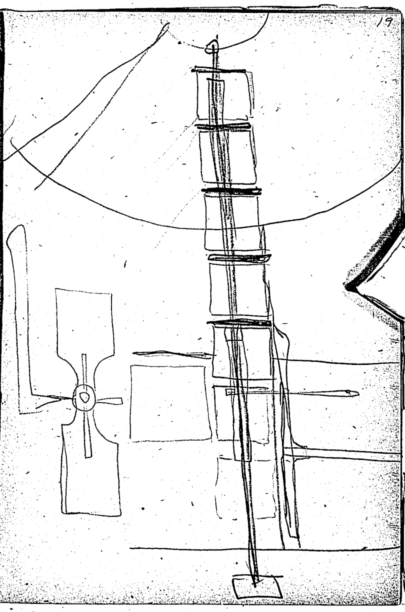
175
30
52,50







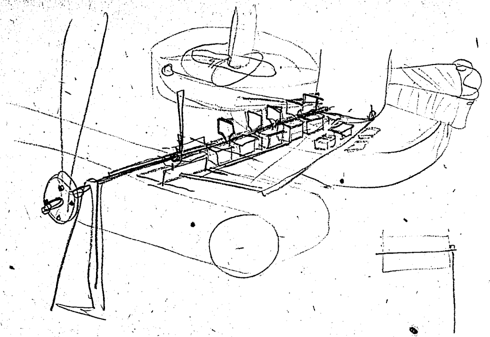


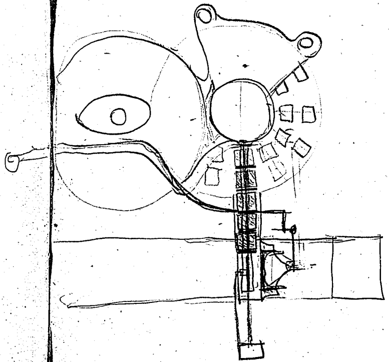


36—

49
78
392
343
3822

36
78
288
252
2808





Note - Vol. I to V.
on pgs 25-47 refers to
Watts, Dictionary of Chemistry
1883 Edition
N.R.S.
10/5/53

Miscellaneous -

By action of ammonia & sulphur on acetone a number of products are obtained of indefinite character -

~~Acont~~ Aconitic acid _ aconitate Calcium gelatinous when nearly dry then Resin. -

Albumen Combines with Lime, product dries after while hard as stone also combines with Na K Baryta &c

Chloride Cal combines with alcohol to white amorph mass see Vol 1 _ 80 -

Sulphide of Allyl forms with aqueous Trichl of gold beautiful yellow pp - cakes to Resinous mass & becomes covered with films gold. Vol 1 · 144 -

Sulphide Platinum - pp - when dried at 100 C takes fire & glows until reduced to Pt - Lamp -

~~when~~
Antimonides of Methyl —
Hydrate = Storage bat — Vol 1 345 —

Arsenic alloys w/ Cu white Malleab
pbly no results,

Arsenite of Sb. Transparent fused
vitreous mass

do - Arsenate Aluminum —
Stannous Arsenate, gelatinous
Sulpharsenite Tin — gummy
Sulpharsenate Silver grey ductile | Cake
exhibiting metallic lustre,

Cyanide of Cacodyl — for War —

Bromide gold & also Pt dec by slight
heat = (Heat photography) —

Chrysammate KO Crystals
peculiar effect of light,

Cinchonedine Electric by
friction.

Sulphate Cinchonine become
phosphorescent at 100 C.

Sulphate of Iodocinchonine
Crystals act like tourmaline to light

~~Cocoa~~ Coca wax strongly
Electrical by fctn

End Vol 1

Cobalticyanide of Hydrogen heated to 250C leaves blue powder & higher temp Carbide of Cobalt, black is it a Condr

---

Carbide gold 214 2nd —
" Iron – 222.

Platinocyanide Strontium – white but so sensitive to moisture that breath turns crystals blue –

Sulphydrate Calcium takes hair off

Formate Hg decomposes in dark also by pressure on crystals or 100C heat

Formate Silver even turns black in the dark See Kennelly

Fulminate Silver gradually blackens when exposed to white or blue Light

Chem compound of gelatin & phos Calcium is allantoide

Glucinium dont combine with sulphur at any temp — forms alloy with Silicon —

glycerides in Chloroform & alcohol —

Guiacum Violet rays spec
turn green - Red ray

restores the yellow color

End 2nd Vol

Protochloride of Iodine - Chlorine
removes an H & Iodine goes in-
to Iodine place -

Barium Salt of Isethionic acid
swells up over 100 times its
bulk — KO salt melts
350 & Solidifies to a material
like porcelain — without
loss weight

Copper amalgam expands on setting
is highly plastic like clay

Iron amalgam - magnet (10) Hg
globules magnetic - Ampermeter -

Mercuric oxide the weakest of all
basic oxides being only salt
pp from its salts by water alone

Boric Methide, takes fire
spont in air bright green flame
~~Amount~~ if issues through tube
in air amount of smoke
surprisingly great. 2 or 3 Cubic
inches of gas burnt this way
fills large room full carbon
flocks. flame moist & hand
Can be held in it Vol 3 986

Methylamine is the most sol in water of all known gases

Molybdenum harder than Topaz —

Phosphide of Molybdenum Conducts Electricity dif fuse

Volatile Oils when cold dissolve Oxide Copper & deposit the ox on heating = Ore

Olivil - Resin Electric

Oxalate Calcium dry highly Electric

Potassio-Manganic Oxalate
purple liquid very easily
decomp Light & heat

do ammonio-mercuric Oxalate
do Potassio-mercuric "

See - 432 - IV Resin very Electric

Hydrochlorate of Chloraniline
the Chloroplatinate of a-chloraniline
gives violet film on Ex. to Light

Ethylaniline turns brown
on exp to Light or air -
amylaniline odor of
Roses

See B-8510
Watts Dictionary of
Chemistry

See - ~~Phenyl B~~ Benzhydrolic
Ethylate - 479 - IV
+ acetate " "

Phosphite Chromium dry salt
on heating gives off pure
Hydrogen

Hemisulphide of phos dis in oil,
Shines in dark - 599 - IV

Pyperine - See 659 IV Electric

Tripotassamide - for red + smelly
Else for white setting in air
in Vac by Crack - Vol IV 695

Pat + Phos under Naptha
unit only boiling Naptha

Tartrate or Citrate Lead ignited
[illegible] make a
pyrophoric stuff - might seal
in Vac + then slowly permit
O in =

Sulphides KO Na Lithium
~~Obtd~~ obtained by igniting
Correspondg Sulphates with
Lampblack —
Alum or Hombergs Pyropherus
by heating alum with
Lamp black, starch, or flour
Exhibit ~~spontaneous~~ inflam
IV 765–6 —

Hydroferrocyanite Quinine
Resembles Mosaic gold
20 Vol V
Iodoquinine Effect of light fumy
Vol V 25

Pyrotartriamide with Oxide Lead dissolves paper & Cant be filtered

guncotton when ignited in small quantity in rarified atmos Exhibits 3 dif luminous phenomena in hig Vac beautiful green glow as vac gets lower, yellow etc good = see pyroxylin IV 780

3rd Sup pt 2nd Oils volatile

See Oxidation p 1430 —

April 10/93

1 The use of Of an odd number of rolls —

~~Applying~~ pressure to the Crushing
2 Rolls by a multiplying rope gearing with 2 or more rolls such as described —

3rd arranging one roll above the other.

4th first passing the ore through one Roll then the other.

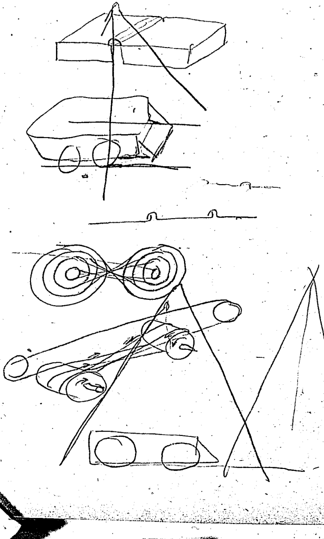
5 Improvement in art of Crushing Consisting in producing great pressure between ~~the~~ Revolving Crushing rolls by the multiplying action of moving ropes or Equivalent device arranged such as described so ~~that such pressure~~, without ~~pres~~ Transmitting such pressure through fixed bearing surfaces —

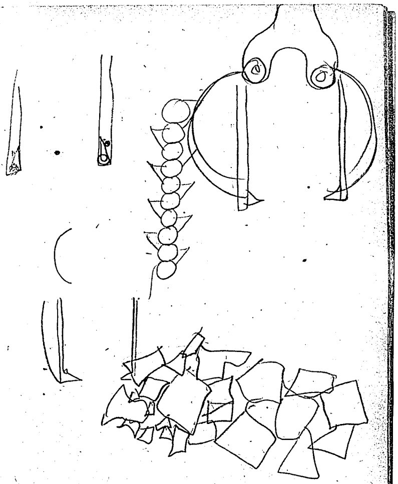
The use of a spring or Equivalent weight producing a constant but relatively small tension on a travelling rope & multiplying such tension many times to produce great pressure between rotating Crushing rolls such as set forth,

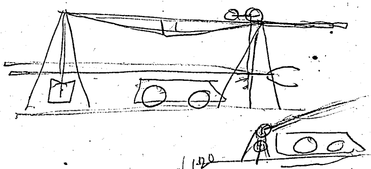
The fixed sheave ~~tak~~ & moveable sheave take up,

Two rolls alone could be used the ropes on the sheave crossing at Each turn, but this method of application is not so effective as with the 3 rolls —

~~Again~~







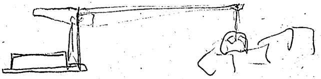
50 | 6000 (120
500
1,00
1,00

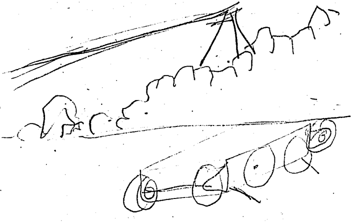
120 cars

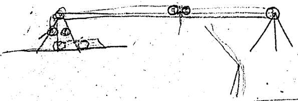
14 cars

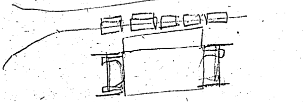
1200 | 6000 (5 – min
20 –
7
40 =

10

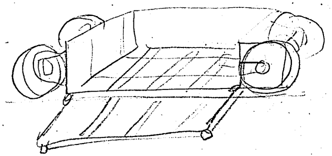








146



[THIS BOOK WAS USED IN BOTH DIRECTIONS.
THE FOLLOWING PAGES WERE FILMED FROM
THE BACK END FORWARD.]

300

14820
9490
5330
1,597,000

9490) 2280 (

2280 | 9490
4120 (4.

270
350
1350
810
9450

290
350
1450
870
101500

280
350
1400
840
98000

280
350
1400
840
98000

2280
650
114000
13680
1482000

285 650
10

8, mills, 800 000
opening mines. 80 000
~~7~~8 RR - etc. 200 000
1,080 000,

8, Mills.
8000 tons daily

ore. 3200.
1200.
570.
570
250
5700
6360

285
8
2280, tons daily.
4 | 2280
570

freight.

18,000.

2280.
40
8
320 000
1

12
2280 Crushing etc. Roya.
570
280
3130

15
8000
120000

6360.
3130
9470

333) 1000. (3.31

) 1000

333.

285
45
1425
1140
12825

285
9.00
2565.00

285

27
180
2160
27
4860

333
8
2664

331
50
381.

3.

500.
120
128
136
256
480

385
50
435.

610.
381
229

285) 1090. (3.85
855
2350
2280
3550

2664
300
799,200

2,400 000) 66,660,000 (27
48 000 000
18 660 000
16 800 000

269.

2664
269
23976
15984
5328
716616
300
214,800

801) 66,660,000
6666
10.000

10 -

8000
300
2,400,000

400.
200
12) 80000 (6666
72
80
72
80
72
80

6666
12
13332
6666
79,992

27
3

12 feet ton.

40

350
8
2800.

60

75
300
£3,500

500) 1090 - (

450
400

5

2.00
2 25
4.25

333) 1090 - (3.

3.90

450.

400) 1040 (2.50
800
1900
1.50
400.

2496
600
1896

250
62
312
1560
400
1

436
62
498
249

150
550
750

72.
720 | 2200 (30
2160
400

30c

125
500
62500

312
62
374
500
187000

28

2230
660

2

825
600
225.

1870
600
1270

22
33
110
66
770

22
33
66
66
726

935

1

374
62
436
5
2180
600
1580

1000 60c

3c per 100 lbs — Mining & Milg —

15 pc ore 12 net. ~~100~~

Expenses $600.

10 pct ore 125 tons. at 500 — 550 6 loss 100 —

10 pct ore 125 tons 500 825 profit 225 X

15 " 150 " 500 1000. " 400 X

20 " 200

25 " 250

625 — profit 25

10 pct ore 125 ~~500~~ ~~20~~c 335

15 187 650

20 250 960

25 312 1270

30 374 1580

35 436 1890

40 498

250

335

65

96

1.27

Edmonton Errington,

125 | 2500 (2

125
2
250.

.625 | 1000 (8.

3

1000 | 2500 (2.5
2000
5000

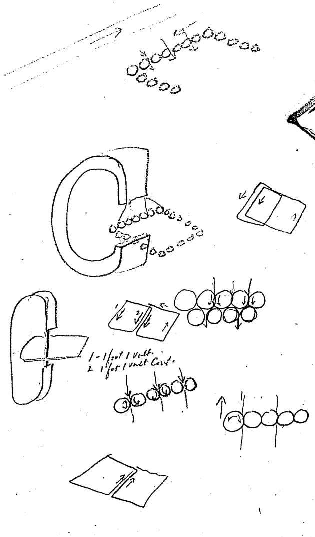
/ 1000

10 pictore 2.5 C Raw Ton

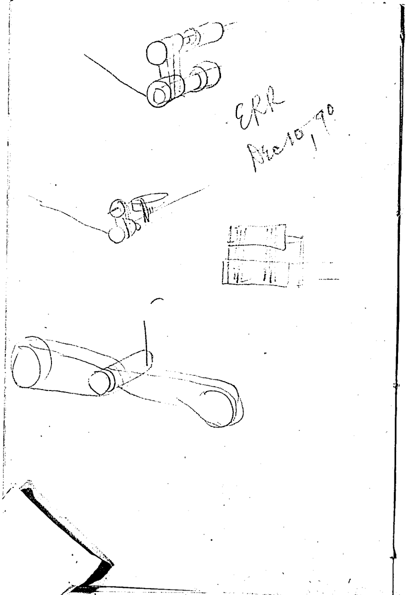
9600

1.27 1) 6500 6

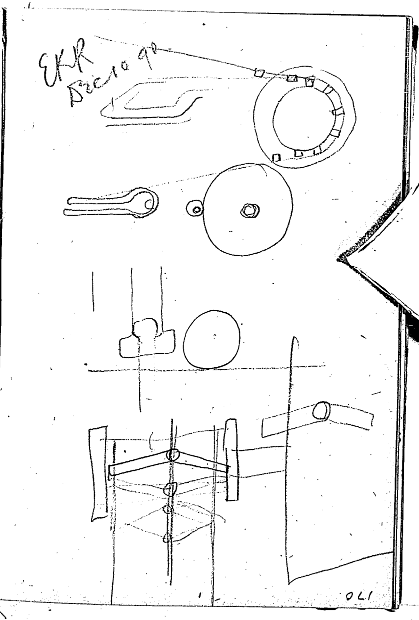
1000) 3350 (3.35
3000
3500
3000
5000



1 - 1' for 1 Volt.
2 1' for 1 volt Cont.

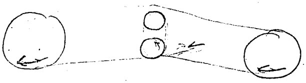


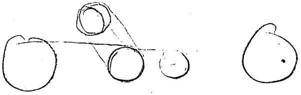
EKR
Dec 10, '90



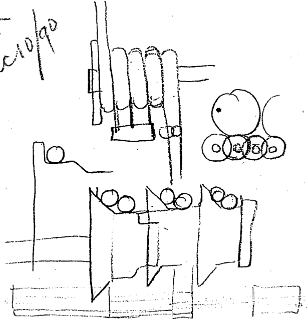
EKR
Dec 10 90

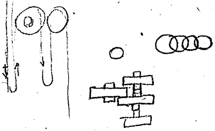
ERR
Dec 10-90

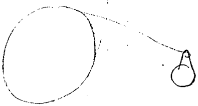




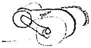
ERR
Dec 10/90

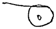


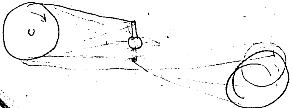




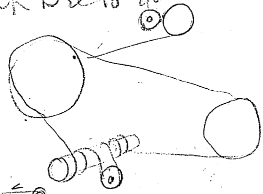
EKK Dec 10/90

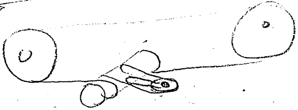


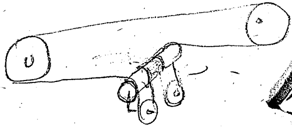




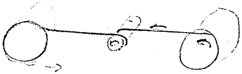
EKK Dec 10 90

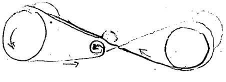


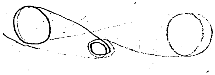




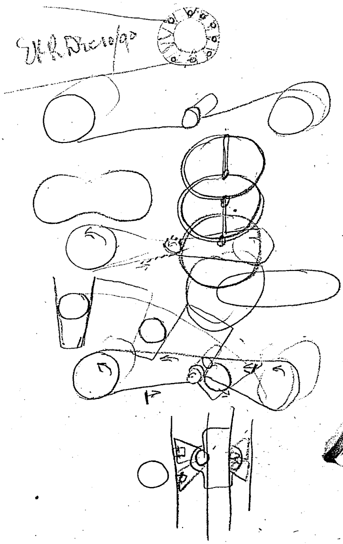
EKK Dec 10 90



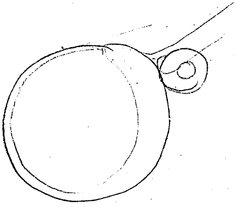


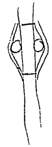


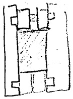
EKK Dec 10/90



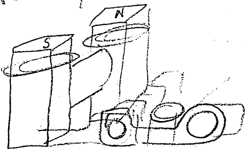
EPIK Dec 10 '90

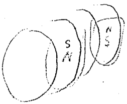


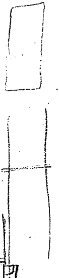


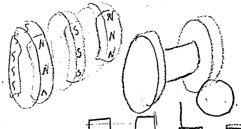


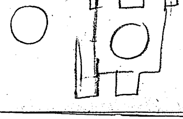
EPIK Dec 10/90





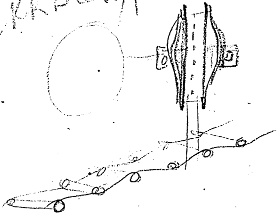


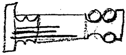




60) 1696. (28
120
496

SKR Dec 10/90

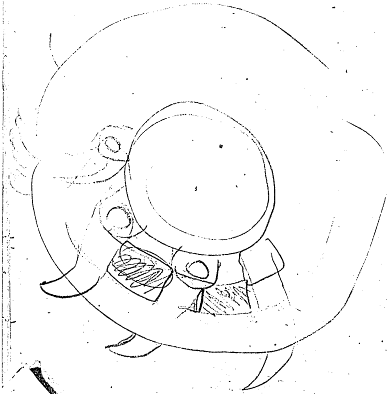


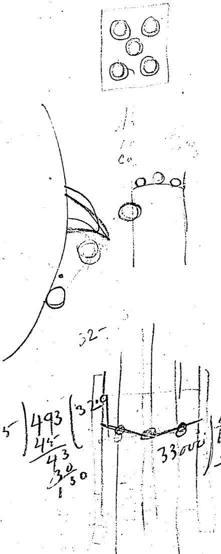


28000 ft in hour

12-

28000
2000
33000) 56000,000 (1696.
33000
23000 0
19800 0
3200000
2970000
230000





800-
650-

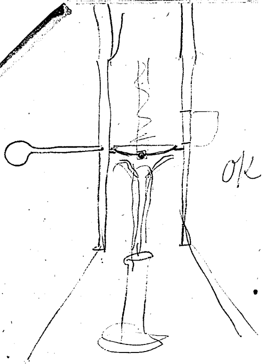
32-

15) 493 (32.9
45
43
30
130
1

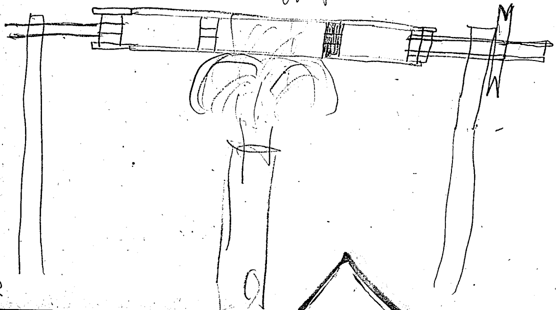
33000

25000
650
125000
150000
1625000
132
30500
297
108
1

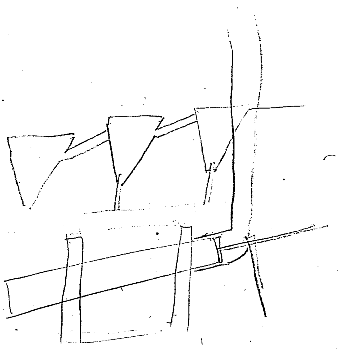
49
3



OK



OK for distilling

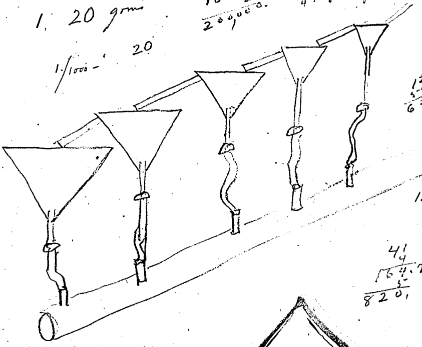


1. 20 gms

$$\begin{array}{r} 10000 \\ 20 \\ \hline 200000. \end{array}$$

$\frac{1}{4} \times \frac{1}{8}$ 2 gms or 5 gms gold

1/1000 – 20

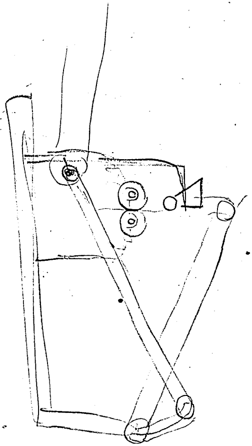


$$\begin{array}{r} 250 \\ 250 \\ \hline 12500 \\ 500 \\ \hline 62500 \end{array}$$

4/1000 – 5000

$$120 \overline{)5000}(41.$$
$$\begin{array}{r} 480 \\ \hline 200 \\ 120 \\ \hline \end{array}$$

$$\begin{array}{r} 41 \\ 4 \\ \hline 164.\ \text{mg} \\ 5 \\ \hline 820. \end{array}$$

75^c